

Lake Washington Ship Canal Fish Ladder

While the fish ladder was designed primarily for fish, accommodations were included for visitors. The ladder is unique in that visitors can be spectators (almost in downtown Seattle) to a part of one of nature's marvels - fish that obey a biological command to return to spawn in streams where they began their life cycle. These anadromous salmon and trout are headed for rivers and streams within the Lake Washington watershed. Very few fish used the old 1917 vintage ladder because of poor attraction water (water flowing swiftly in opposite direction fish are headed). They preferred instead to use the locks. Calling on experience and knowledge gained from similar structures, Seattle District engineers and biologists, working with state and Federal fishery agencies, designed and built a new ladder. The new structure, built on the site of the old ladder at a cost of \$2.3 million, was dedicated June 1, 1976. It has 21 steps, or weirs, which allow the fish to move upstream at a lesser slope than in the old ten-step ladder. The three upstream weirs are adjustable to the level of Lake Washington. Another improvement in the new facility gives the fish the choice of jumping over weirs or using underwater openings (called orifices). Attraction water is a key factor in the successful operation of a fish ladder. In order to draw fish away from the locks and to the ladder, an improved system was developed to substantially increase the quantity of attraction water flowing from the new ladder. An underwater pipe connects the saltwater drain basin at the upstream end of the locks with the diffuser system of the ladder. The heavy salt water, entering the fresh water of Salmon Bay during boat lockages, settles below the elevation of the lake bottom into a dredged basin. Before construction of the new ladder, this salt water emptied back into Shilshole Bay via a discharge pipe near the small lock, thus attracting large numbers of fish to the north side of the spillway near the locks. Most of the salt water is now diverted via the underwater pipe into the lower portion of the fish ladder through a diffuser system where it mixes with the fresh water coming down the ladder. The old saltwater discharge pipe still drains any salt water in excess of that required for fish attraction. A below-ground-level viewing gallery provides a close-up view of activities in the ladder. Six large lighted windows installed in the side of the ladder below water level give people close-up views of the fish underwater. A ramp entrance into the viewing gallery ensures everyone an opportunity to enjoy the area. The best season to view salmon is during the summer and early fall (June to September). Many thousands of sockeye, coho and chinook return to Lake Washington.